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ENGINEERING PQS USER'S GUIDE

This guide will explain the Personnel Qualification Standards (PQS) progra
hat it is, and how to use it.

. WHAT IS PQS?

The PQS Program is a qualification system for officer and enlisted personn
o perform certain duties. A PQS is a compilation of the minimum knowledge an
kills required to qualify for a specific watchstation, maintain specific
quipment or perform as a team member within a unit. The PQS Program is not
esigned as a training program, but provides many training objectives. This P
ill assist you in becoming a more productive member of the "combat-ready
ualified Navy team."

I. WHAT MAKES UP THE PQS PROGRAM?

The PQS program consists of the Standard booklet and the Progress Chart.

A. The Standard booklet contains questions you must be able to answer an
erformance items you must be able to do in order to qualify for a particular
atchstation/Workstation. Standards are written by naval personnel after aski
hemselves, "What do I need to know to do the job properly?"

The Standard booklet is made up of the following parts:

1. TABLE OF CONTENTS
2. USER'S GUIDE
3. DEFINITIONS OF WORDS USED IN PQS
4. CONTRIBUTING FLEET PERSONNEL
5. FUNDAMENTALS AND SYSTEMS SUMMARY
6. FUNDAMENTALS (100 SECTION)
7. SYSTEMS (200 SECTION)
8. QUALIFICATION SECTION
9. WATCHSTATIONS/WORKSTATIONS (300 SECTION)
10. FEEDBACK FORM

B. The Progress Chart is used to display all the Standards in progress o
hat have been completed by your division or work center. Your division offic
ses the progress chart to determine who is qualified to stand the watches or
erform the tasks required by your division. You should check the progress
hart periodically to make sure all of the Standards you have completed have
een recorded.

II. PQS FORMAT

A. The numbers in PQS follow a definite pattern. The following breakdow
f the numbering system is a handy key to PQS format:

ubject	1st Digit	2nd thru 4th Digit

a four-digit number.

Example: 9201

9 - Indicates qualification area (9 = Auxiliary)
201 - Indicates section 2 (System section) and that it is the 1
System

In the Systems section of your Standard booklet, you may find a form such as the following example. For item .21 you must answer questions A For item .22 answers to questions A and B are required. If there is no X's, all questions must be answered.

9201.2 SYSTEM COMPONENTS AND COMPONENT PARTS

Discuss the designated items for the following components and component parts:

A. What is its function?
B. Where is it located?
C. What is the source of power?

		A	B	C
.21	Hydraulic pump	X	X	X
.22	Oil reservoir	X	X	

C. Qualification Group Numbering System

The Watchstation/Workstation section (300) is divided into qual groups. Your book may be used for more than one final qualification suc LKA-113 Class Duty Auxiliaryman/Supervisor. Each group is indicated on Final Qualification Sign-Off Page as follows:

Example: NAVEDTRA 43140-9AQ1

43140 - Indicates NAVEDTRA number assigned to the PQS pack
9 - Indicates Auxiliary
A - Indicates first revision
Q1 - Indicates the first qualification group

1. FUNDAMENTALS (100 Section) This section identifies basic k needed to do the job properly. Normally you would have acquired this kn during the school phase of your training. If you have not been to schoo requirements are outlined and the references listed will aid you in a se program.

2. SYSTEMS (200 Section) In systems, the subject under discus is broken down into functional sections that may be compared to the elec system in your car. The components of the electrical system are scatter throughout your car, but taken all together they form the "electrical sy The same is true of the equipment you are studying. The components may

ations are divided into final qualification "groups" (Qual 1, Qual 2 etc.)
ach group containing the following:

a. Final Qualification Sign-Off Page

Final record that is filed in your training jacket and recorded in your Service Record upon final qualification

b. Qualification Summary Page

Record of completion of other PQS qualifications, and Watchstations/Workstations within a qualification group

c. Watchstations/Workstations (Task Sign-Off Pages)

Record of completion of performed tasks for each Watchstation/Workstation and instruction watches required by each Watchstation in a qualification group

W TO QUALIFY

Your division officer or work center supervisor will issue you a
oklet. Your supervisor will assign Watchstations/Workstations and set
imits (goals) for completing your qualification. Progress toward
ication will be monitored on the division/work center Progress Chart.
timated completion time, shown at the beginning of each Watchstation/
ation, is only a recommendation and may be modified by your command.
icates how long it will take the average sailor under normal conditions
plete each Watchstation/Workstation.

Open your Standard booklet to your assigned Watchstation/Workstation.
beginning of the Watchstation/Workstation you will find a list of items
ust be completed before starting your tasks. Standards may include
tations/Workstations other than the one on which you are working.
trate on the prerequisites for the Watchstation/Workstation to which
ve been assigned and do not delay your qualification by spending time
ers.

Complete the Safety Precautions Fundamentals first, then the rest of
quired Fundamentals and Systems. Your supervisor may require you to
te these in a certain order, if not, the choice is up to you. If you do
ow the answer to a question in the Standard booklet, look up the answer
of the reference books listed. If you cannot find the answer in the
nce books, ask your supervisor for help.

As you complete a Fundamental or System section, have the Qualification
Officer sign your Fundamentals and Systems Summary page. When you have
ted all prerequisites, you are ready to start the performance items listed

A. As a senior petty officer, you will be required to assign junior personnel to complete specific Watchstations/Workstations in PQS. When you do this, always look through the Standard booklet to determine other items that should be completed before work is started on the required Watchstation Workstations or related Fundamentals and Systems. If you are assigning more than one Watchstation/Workstation or section to be completed, it is your dec to specify which one should be completed first. The supervisor is an extrem important part of the PQS program if it is to be successful. If you adminis PQS with insight, you will find that PQS is a helpful tool that can fit into your overall training plan. You will be responsible for the accuracy, updat and tailoring of PQS to fit your command's needs, as well as for the initiat of appropriate feedback to the PQS Development Group (feedback forms are loc in the back of each Standard booklet). You should provide motivation to you personnel by assigning goals, showing interest, and following the trainees' progress. The supervisor is responsible for training and should be the one to update and maintain the progress chart. It is important that the supervi be aware of who is and who is not progressing, as well as where counseling c individual instruction may be needed. A sample PQS progress chart can be fo in the PQS Manager's Guide (NAVEDTRA 43100-1B). As a supervisor you must be totally familiar with the duties, responsibilities, and assignments of your Qualification Petty Officers. Your PQS program cannot survive without good planning and quality control.

B. The estimated completion time, shown at the beginning of each Watchstation/Workstation, is only a recommendation and may be modified by th command. It indicates how long it will take the average sailor under normal conditions to complete each Watchstation/Workstation.

VI. THE QUALIFICATION PETTY OFFICER

A. Selection as a Qualification Petty Officer means that you are one of the command's subject matter experts on those Fundamentals, Systems and Watchstations/Workstations assigned to you. PQS cannot be successful withou you. Your job is to be totally knowledgeable in your assigned areas, to mak yourself available to check off your trainees' achievements, and to ensure that a high-quality PQS program is maintained in your division.

B. Each Qualification Petty Officer should have a set of standard answ for the Watchstations/Workstations so that all trainees receive the same ans If multiple signatures are required for a line item, it is preferable that c working day or one watch elapse between signatures. If the trainee does not know the correct answer, it is your responsibility to help find the answer in the reference material. This will speed up the process of qualification and will familiarize your trainees with the use of publications. Obviously, this requires that you know where all the answers can be found.

C. As the Qualification Petty Officer you will be the most likely individual to discover discrepancies in the Standard booklet. Any discrepancies noted should be brought to the attention of your supervisor so that appropriate tailoring and corrections can be made. It must be

W EVOLUTION - A grouping of aircrew tasks that measure performance course of a flight

IENTS - Major units that make up a system when properly connected

IENT PART - A major part of a component

OL SIGNAL - A signal used to control electronic or mechanical devices

NCY - An event or series of events in progress that will cause damage ipment or personnel unless immediate corrective steps are taken

IENTALS - Basic facts, theories, laws or principles (100 Section in PQS)

OCK - A protective device to prevent the unsafe operation of equipment sequence the action of systems, components or component parts

NANCE ACTION - A maintenance technician qualification that measures y to perform a designated task

NANCE OPERATION - A qualification that measures the ability to perform (using established procedures) to determine the need for maintenance

OPERATING VALUE - The point at which satisfactory performance may ected

TER - A variable (temperature, pressure, flow rate, voltage, current, ncy etc.) that must be indicated, monitored, checked or sensed during ion or testing

TIVE FEATURE - A device designed to prevent damage or injury

IG POINT - The point in a system at which a signal may be detected

NT - The value of a parameter at which: (a) an alarm is set off, erator action is required, (c) valves open or shut, (d) proper ion stops and damage may occur, or (e) the optimum value for normal ion

T ACTION - A qualification that measures the ability to perform specific etitive tasks that do not involve the correction of a malfunction or of equipment

IS - Groups of components that operate together to perform specific ons (200 Section in PQS)

INTERFACE - (a) How outside influences affect the operation of this n, or (b) How the operation of this system affects the operation of systems or equipment

NGES - Maximum and minimum allowable values of a parameter

e following personnel, under the supervision of the PQS Development Group, de a significant contribution to the development of this PQS for LKA-113 ass Engineering Auxiliary (Qual 9A):

ENCM	David J. NEKOLA	SSC GREAT LAKES, IL
EN1	Charles DAVIS	USS ST LOUIS (LKA-116)
MM1	William FESMIRE	USS ST LOUIS (LKA-116)
EN1	John KNAPP	USS EL PASO (LKA-117)

FUNDAMENTALS

		SIGNATURE	DA
9101	Mechanical		
9102	Hydraulics		
9103	Air-Conditioning and Refrigeration		
9104	Diesel Engine		
9105	Engineering Administration		
9106	Engineering Safety Precautions		

SYSTEMS

9201	Anchor Windlass		
9202	Electrohydraulic Steering		
9203	Air-Conditioning		
9204	Refrigeration		
9205	Small Boat/Landing Craft Mechanized (LCM) Boat		
9206	JP-5 Service/Transfer		
9207	Ship's Service Diesel Generator (SSDG)		
9208	Cargo Handling Equipment		
9209	Hotel Services		

References:

a. Fireman (NAVEDTRA 10520)
b. Engineman 3 & 2 (NAVEDTRA 10541)
c. Machinist's Mate 3 & 2 (NAVEDTRA 10524)

.1 List the manuals and instructions most frequently used by your division.

.2 Describe the applications of the following pumps and valves:

a. Centrifugal pump
b. Gear-type pump
c. Reducing valves
d. Relief valves
e. Check valves

.3 Explain the applications of the following tools and devices:

a. Torque wrench
b. Lube oil test kit
c. Micrometer
d. Water test kit
e. Ring expander
f. Ring compressor
g. Torque multiplier
h. Feeler gauge
i. Deflector gauge
j. Dial indicator
k. Injector timing tool
l. Rack adjusting tool

.4 Describe the uses and handling of the following materials:

a. Teflon packing
b. Oil paper
c. Wire inserted packing
d. Neoprene preformed gaskets

References:

a. Machinist's Mate 3 & 2 (NAVEDTRA 10524)
b. Fireman (NAVEDTRA 10520)
c. Machinist's Mate 1 & C (NAVEDTRA 10525)
d. Naval Ships' Technical Manual, Chap 556 (NAVSEA S9086-S4-S
e. Basic Machines (NAVEDTRA 10624)
f. Fluid Power (NAVEDTRA 16193)

.1 Describe the following types of drawings:

a. Cross-section
b. One-line sketch
c. Schematic diagram
d. Block diagram

.2 List the authoritative manuals or instructions used by your ur

.3 Explain the applications of the following:

a. Reservoir
b. Pump
c. Tubing or piping
d. Control valve or selection valve
e. Actuating unit

.4 Describe the equipment that employs basic hydraulics aboard Na

.5 Describe an axial piston-type pump.

.6 Describe a radial piston-type pump.

.7 Describe the principles of operation of a directional-control flow-control valve.

.8 Define the following terms as used in basic hydraulics:

a. Viscosity
b. Viscosimeter
c. Viscosity index
d. Lubricating power
e. Chemical stability
f. Freedom from acidity
g. Flashpoint
h. Firepoint
i. Minimum toxicity

.9 Describe the three most common types of hydraulic fluids and h each is used aboard Navy ships.

.10 Describe the packing and gasket materials most commonly employ

9102 HYDRAULICS FUNDAMENTALS (CONT'D)

.12 Describe the type of power-driven anchor windlass aboard your ship.

.13 Describe the two general types of electrohydraulic elevators.

.14 Describe the effects of pressure-temperature relationship.

9103 AIR-CONDITIONING AND REFRIGERATION FUNDAMENTALS

References:

a. Machinist's Mate 3 & 2 (NAVEDTRA 10524)
b. Fireman (NAVEDTRA 10520)
c. Naval Ships' Technical Manual, Chap 9590 (NAVSEA 0901-LP-590-
d. Refrigeration and Air-Conditioning (NAVEDTRA 16163)

.1 Explain the applications of the following:

a. Thermal-expansion valve (TXV)
b. Evaporator
c. Compressor
d. Condenser
e. Receiver

.2 Describe the functions of the following controls and accessories applied to the operation of a refrigeration and air-conditioning system:

a. Dehydrator
b. Solenoid valves
c. Evaporator pressure regulator
d. Low-pressure cutout switch
e. High-pressure cutout switch
f. Relief valve cutout switch
g. Water-regulating valve (WAV)
h. Water failure cutout switch
i. Strainers
j. Chilled-water pressure switch
k. Low chilled-water temperature cutout
l. Lube oil failure switch
m. Packless refrigeration valve
n. Chilled-water pump
o. Chilled-water expansion tank
p. Unit coolers
q. Duct coolers
r. Gravity coils
s. Chilled-water expansion tank relief valve
t. Flow regulator valves

.3 Define the following terms:

a. Unit of heat (Btu)
b. Specific heat
c. Latent heat of vaporization
d. Latent heat of condensation
e. Refrigeration ton

9104 DIESEL ENGINE FUNDAMENTALS

References:

a. Fireman (NAVEDTRA 10520)
b. Engineman 3 & 2 (NAVEDTRA 10541)
c. Diesel Engines (NAVEDTRA 10938)
d. Naval Ships' Technical Manual, Chap 233 (NAVSEA S9086-HB-STM

.1 Describe the following types of drawings:

a. Schematic
b. One-line sketch
c. Cross-section

.2 List the authoritative manuals or instructions used by your depa

.3 Explain the principles of operation and service uses of the foll

a. Fuel booster pump
b. Fuel injection pump
c. Fuel injector
d. Cylinder head assembly
e. Cylinder assembly
f. Crankshaft assembly
g. Camshaft assembly
h. Blower
i. Gear train

.4 Explain the applications and service uses of the following equip

a. Lube oil pump
b. Water pump
c. Raw water pump
d. Heat exchangers
e. Governor
f. Scavenging oil pump
g. Piston cooling point
h. Oil sump

.5 Explain the protective functions of the following:

a. Governor (overspeed)
b. Remote fuel shutdown
c. Filters
d. Strainers
e. Gauges
f. Thermometer
g. Pyrometer

9104 DIESEL ENGINE FUNDAMENTALS (CONT'D)

.6 Define the following terms as used in engineering:

a. Intake
b. Compression
c. Combustion
d. Exhaust
e. Scavenging
f. Turbocharge
g. Hone
h. Reseat
i. Reface
j. Viscosity
k. Saybolt second universal (SSU)
l. Flashpoint
m. Firepoint
n. Priming
o. Local control
p. Emulsify
q. Atomize
r. RPM

.7 Explain the following:

a. Diesel cycle
b. Supercharged engine
c. Two-stroke engine
d. Four-stroke engine

.8 Describe the uses and handling of the following:

a. JP-5
b. Lube oil
c. All-purpose grease
d. Zinc

.9 Explain the test procedures for the following:

a. Firing pressure
b. Compression pressure
c. Injection nozzle popping pressure
d. Lube oil acidity
e. Lube oil dilution
f. Lube oil solid contaminants
g. JP-5 Mark I
h. JP-5 Mark III

.10 Explain the inspection procedures for the following:

9104 DIESEL ENGINE FUNDAMENTALS (CONT'D)

.11 Describe the basic types of diesel engines.

.12 Describe the design features of diesel engines.

.13 Explain the following types of fuel injection:

a. Bosch system
b. Roosa-Master system
c. Unit injection

9105 ENGINEERING ADMINISTRATION FUNDAMENTALS

References:

a. Engineering Department Organizational and Regulations Ma
b. Engineering Administration (NAVEDTRA 10992)
c. Fireman (NAVEDTRA 10520)
d. Naval Ships' Technical Manual, Chap 001 (NAVSEA S9086-AA
e. Naval Ships' Technical Manual, Chap 090 (NAVSEA S9086-CZ

.1 Explain the procedures required aboard your ship to obtain p
to "go aloft."

.2 Explain engineering department organization and define the d
of all personnel.

.3 Explain an in-port watch organizational chart and define the
and responsibilities of each watchstander.

.4 Describe tag-out procedures and log entries.

.5 Describe the duties of the Engineering Training Officer, Dam
Assistant and Engineering Officer.

.6 State the purpose of the following logs/records:

a. Fuel and water report
b. Engineering Officer Night Order Book

.7 Describe the steps required to obtain permission to start/te
major machinery in port.

References:

a. Fireman (NAVEDTRA 10520)
b. Boiler Technician 3 & 2 (NAVEDTRA 10535)
c. Machinist's Mate 3 & 2 (NAVEDTRA 10524)
d. Naval Ships' Technical Manual, Chap 300 (NAVSEA S9086-KC-S1
e. Navy Safety Precautions for Forces Afloat (OPNAVINST 5100.1
f. Standard Organization and Regulations of the U.S. Navy
   (OPNAVINST 3120.32)

.1 Describe where safety precautions are posted on machinery and throughout the spaces.

.2 Draw a simple diagram of machinery locations indicating access escape routes in your space.

.3 Explain the uses and protective functions of the following:

a. Relief valves
b. Recirculating valves
c. Safety valves
d. Lagging
e. Reach rod
f. Quick-closing valve
g. Automatic cutout
h. Speed-limiting governor
i. Constant-pressure regulator

.4 Describe the effects of the following:

a. Improper pump shaft packing
b. Misuse of valves
c. Improper tightening of packing gland
d. Bowed shaft

.5 Describe the safety precautions to follow when working with hi rotating machinery.

.6 Describe the purpose of flange flash guards.

.7 Discuss the importance of bolted deckplates, gratings and hand

.8 Discuss the importance of good housekeeping practices in engin spaces.

.9 Explain the hazards of oil in the bilges.

.10 Describe the dangers of skylarking in machinery spaces.

.11 Explain the special hazards of and procedures for working on a with single-valve protection.

9106 ENGINEERING SAFETY PRECAUTIONS FUNDAMENTALS (CONT'D)

.13 Explain the importance of tagging valves on a secured syste

.14 Describe the safety precautions to follow when operating a compressed-air system.

.15 Define the following terms as used in engineering:

a. Light off
b. Secure
c. Start
d. Line up
e. Cut in
f. Standby
g. Boosting

.16 Describe the protection provided by the following safety eq and state examples of ship evolutions that require their us

a. Long-sleeved shirts
b. Hardhats
c. Goggles/face masks
d. Gloves
e. Safety shoes
f. Ear plugs
g. Life jackets

.17 Describe the safety tag-out system.

.18 State the purpose and correct use of rubber mats and rubber as personal safety equipment.

.19 Describe the safety precautions to follow when using calciu hypochlorite, solvents, asbestos, fiberglas insulation, ref mercury, fluorescent lamps and lead-based materials.

.20 Explain the oily waste discharge limitations as they apply personnel.

.21 Describe the procedures used in the event of an oil spill.

.22 Describe the procedures used in the event of a sewage spill

.23 Explain the special hazards of and procedures for working pressurized system component.

.24 Explain the special hazards of and procedures for working system that opens to the sea.

.25 Discuss the safety precautions to follow and/or personnel safety equipment/devices required in the following situations set forth in OPNAVINST 5100.19:

a. During replenishment-at-sea operations (Chap 2, Sec III)
b. When working aloft (Chap 2, Sec V)
c. During heavy weather (Chap 2, Sec VI)
d. While working with paint (Chap 10, Sec IV)
e. While working with electrical/electronic equipment (Chap 5
f. While operating portable electric tools (Chap 5, Sec II)
g. While welding, cutting and brazing (Chap 6)
h. During operations of main and auxiliary steam turbines (Ch Sec IV)
i. While working with workshop equipment (Chap 9, Sec I, II,
j. While handling hazardous material (Chap 10, Sec I, II, III V and VI)
k. While working on valves (Chap 9, Sec I)

.26 Discuss the hazards of oil fires (as set forth in OPNAVINST 51 Chap 3, Sec I, II and III).

.27 Discuss first aid for electrical shock (as set forth in OPNAVI 5100.19, Chap 5, Sec III).

.28 Discuss the Heat Stress Analysis Program (as set forth in OPNA 5100.20) and the following associated terms:

a. Wet bulb
b. Dry bulb
c. Radiant heat
d. WBGT
e. PHEL
f. Safe stay time

.29 Discuss the Hearing Conservation Program (as set forth in BUME 6260.2).

9201 ANCHOR WINDLASS SYSTEM

References:

a. Naval Ships' Technical Manual, Chap 581 (NAVSEA S9086-TV-ST
b. Engineering Operational Sequencing System (EOSS)
c. Manufacturer's Technical Manual (NAVSEA 0926-LP-007-1010)

9201.1 What is the function of this system?

.11 Refer to a standard print of this system or to the actual equip

9201.2 SYSTEM COMPONENTS AND COMPONENT PARTS

Discuss the designated items for the following components and component parts:

A. What is its function?
B. Where is it located?
C. What is the source of power?
D. What are the modes of operation or control?
E. What protection is provided by this component/component par
F. What are the positions and functions of each position?

		A	B	C	D	E
.21	Hydraulic pump	X	X	X		
.22	Oil reservoir	X	X			
.23	Flexible coupling	X	X			
.24	Manual brake	X	X			
.25	Gear reducer	X	X	X		
.26	Electric brake	X	X	X	X	
.27	Wildcat	X	X	X	X	
.28	Gypsy head	X	X	X	X	
.29	Servo control handle	X	X			
.210	Hydraulic filters	X	X			X
.211	Hydraulic strainer	X	X			X
.212	Hydraulic relief valves	X	X			
.213	Clutch levers	X	X		X	
.214	Hydraulic motor	X	X	X	X	
.215	Power limiter	X	X			

9201.3 PRINCIPLES OF OPERATION

.31 How do the components work together to achieve the system's fun

.32 Using a diagram of the system, show the path of hydraulic fluid pump discharge to the pump suction.

9201.4 PARAMETERS

9201.5 SYSTEM INTERFACE

.51 How does loss of electrical power affect this system?

9201.6 SAFETY PRECAUTIONS

.61 What general safety precautions apply to this system?

9202 ELECTROHYDRAULIC STEERING SYSTEM

References:

a. Manufacturer's Technical Manual
b. Engineering Operational Sequencing System (EOSS)
c. Naval Ships' Technical Manual, Chap 562 (NAVSEA S9086-TA-ST

9202.1 What is the function of this system?

.11 Draw a diagram of this system showing all components listed bel
.12 Refer to a standard print of this system or to the actual equip

9202.2 SYSTEM COMPONENTS AND COMPONENT PARTS

Discuss the designated items for the following components and component parts:

A. What is its function?
B. Where is it located?
C. What is the source of power?
D. What are the modes of operation or control?
E. What are the safety/protective devices for this component/ component part?
F. What protection is provided by this component/component par
G. What is the source of control signals?
H. What are the positions and functions of each position?

		A	B	C	D	E
.21	Ram and cylinder assembly	X	X	X	X	
.22	Power unit assembly (pump)	X	X	X		X
.23	Trick wheel	X	X			
.24	Shift lever	X	X			
.25	Helm pointer	X	X			
.26	Rudder pointer	X	X			
.27	Stop arm	X	X			
.28	Linkage assembly	X	X			
.29	Service tank	X	X			
.210	Storage tank	X	X			
.211	Rudder angle indicator	X	X	X		
.212	Emergency steering hand pump	X	X			
.213	Replenishment/transfer pump	X	X	X		
.214	Synchro transmitter control	X	X	X	X	
.215	Filters	X	X			
.216	Strainers	X	X			
.217	Automatic transfer switch	X	X	X	X	
.218	Relief valve	X	X			
.219	Replenishing valve	X	X			
.220	Solenoids	X	X	X		
.221	Automatic valve	X	X			

9202.3 PRINCIPLES OF OPERATION

.31 How do the components work together to achieve the system's fun

.32 Using a diagram of the system, show the path of hydraulic fluid

a. The storage tank to the replenishment tanks.
b. The power unit assembly discharge to the power unit assembly suction.
c. The emergency discharge steering pump to the emergency steering pump suction.

9202.4 PARAMETERS

For the items listed answer the following questions:

A. What are the normal operating values?
B. Where are the parameters sensed?
C. What is the physical location of the indicators?
D. What is the alarm setpoint?

		A	B	C	D
.41	Hydraulic pressure	X	X	X	X
.42	Servo pressure	X	X	X	X
.43	Storage tank level	X	X	X	
.44	Replenishing tank level	X	X	X	

9202.5 SYSTEM INTERFACE

.51 How does loss of electrical power affect this system?

9202.6 SAFETY PRECAUTIONS

.61 What general safety precautions apply to this system?

9203 AIR-CONDITIONING SYSTEM

References:

a. Manufacturer's Technical Manual
b. Naval Ships' Technical Manual, Chap 510 (NAVSEA S9086-RQ-STM-
c. Engineering Operational Sequencing System (EOSS)

9203.1 What is the function of this system?

.11 Refer to a standard print of this system or to the actual equipme

9203.2 SYSTEM COMPONENTS AND COMPONENT PARTS

Discuss the designated items for the following components and component parts:

A. What is its function?
B. Where is it located?
C. What is the source of power?
D. What are the modes of operation or control?
E. What are the safety/protective devices for this part?
F. What protection is provided by this component/component part
G. What are the probable indications if this component fails?
H. What is the source of control signals?
I. What are the positions and functions of each position?
J. What are the interlocks?

		A	B	C	D	E	F	G	H	I	J
.21	Compressor	X	X	X		X		X			
.22	Receiver	X	X								
.23	Expansion tank	X	X			X					
.24	Chilled-water pump	X	X	X				X			
.25	Chiller	X	X								
.26	Condenser	X	X			X	X				
.27	Thermal-expansion valve (TXV)	X	X	X	X			X	X		
.28	Water-regulating valve (WRV)	X	X	X	X		X	X		X	
.29	Hand-expansion valve (HXV)	X	X								
.210	Charging valve	X	X								
.211	Purging valve	X	X							X	
.212	Dehydrator	X	X				X	X			
.213	Moisture indicator	X	X				X				
.214	Discharge relief valve	X	X				X	X		X	
.215	High-pressure (HP) cutout switch	X	X	X			X	X	X	X	X
.216	Low-pressure (LP) cutout switch	X	X	X			X	X	X	X	X
.217	Water failure switch	X	X	X			X	X	X	X	X
.218	Strainers	X	X				X				
.219	Oil pressure differential switch	X	X	X			X	X	X		X

9203.3 PRINCIPLES OF OPERATION (CONT'D)

.32 Using a diagram of the system, show the path of:

a. Refrigerant from the compressor discharge to the compressor suction.
b. Seawater from the condenser inlet to the overboard.

9203.4 PARAMETERS

For the items listed answer the following questions:

A. What are the normal operating values?
B. Where are the parameters sensed?
C. What is the physical location of the indicators?

.41 Chilled-water temperature
.42 Compressor suction pressure
.43 Compressor discharge pressure
.44 Oil pressure
.45 Seawater pressure
.46 Chiller inlet temperature
.47 Chiller outlet temperature
.48 Expansion tank pressure
.49 Chiller pump discharge pressure
.410 Condensor inlet temperature
.411 Condensor outlet temperature
.412 Dehydrator inlet temperature
.413 Dehydrator outlet temperature

9203.5 SYSTEM INTERFACE

.51 How do the following outside influences affect this system:

a. Loss of freshwater pressure
b. Variations in ambient temperature
c. Loss of LP air
d. Loss of firemain pressure
e. Loss of electrical power
f. Loss of cooling water pressure

9203.6 SAFETY PRECAUTIONS

.61 What general safety precautions apply to this system?

.62 What special safety precautions apply to handling refrigerant?

9204 REFRIGERATION SYSTEM

References:

a. Manufacturer's Technical Manual
b. Naval Ships' Technical Manual, Chap 9590 (New 516) (NAVSEA 0901-LP-590-0002)
c. Engineering Operational Sequencing System (EOSS)

9204.1 What is the function of this system?

.11 Draw a diagram of this system showing all components listed below.
.12 Refer to a standard print of this system or to the actual equipment

9204.2 SYSTEM COMPONENTS AND COMPONENT PARTS

Discuss the designated items for the following components and component parts:

A. What is its function?
B. Where is it located?
C. What is the source of power?
D. What are the modes of operation or control?
E. What are the safety/protective devices for this component/component part?
F. What protection is provided by this component/component part?
G. What are the probable indications if this component fails?
H. What is the source of control signals?
I. What are the positions and functions of each position?
J. What are the interlocks?

	A	B	C	D	E	F	G	H	I	J
.21 Compressor motor	X	X	X				X	X		
.22 Receiver	X	X								
.23 Condenser	X	X			X					
.24 Thermal-expansion valve (TXV)	X	X				X	X	X		
.25 Water-regulating valve (WRV)	X	X		X		X	X	X		
.26 Hand-expansion valve (HXV)	X	X								
.27 Charging valve	X	X								
.28 Purging valve	X	X								
.29 Dehydrator	X	X					X			
.210 Moisture indicator	X	X								
.211 Discharge relief valve	X	X				X	X			
.212 High-pressure (HP) cutout switch	X	X	X	X		X	X	X	X	X
.213 Low-pressure (LP) cutout switch	X	X	X	X		X	X	X	X	X
.214 Water failure switch	X	X	X	X		X	X	X	X	X
.215 King solenoid valve	X	X	X	X		X	X	X	X	X
.216 Solenoid valves	X	X	X	X		X	X	X	X	X
.217 Hot-gas defrosting valves	X	X								
.218 Strainers	X	X				X				

9204.3 PRINCIPLES OF OPERATION

.31 How do the components work together to achieve the system's functio

.32 Using a diagram of the system, show the path of:

a. Refrigerant from the compressor discharge to the compressor suc
b. Seawater from the regulator to the overboard.

.33 What is the sequence of component involvement to hot-gas the transf of refrigerant from one unit to another unit?

.34 What indications will you receive if the system is malfunctioning?

9204.4 PARAMETERS

For the items listed answer the following questions:

A. What are the normal operating values?
B. Where are the parameters sensed?
C. What is the physical location of the indicators?

.41 Compressor suction pressure
.42 Compressor discharge pressure
.43 Oil pressure
.44 Seawater pressure
.45 Condenser inlet temperature
.46 Condenser outlet temperature
.47 Dehydrator inlet temperature
.48 Dehydrator outlet temperature
.49 Box temperatures

9204.5 SYSTEM INTERFACE

.51 How do the following outside influences affect this system:

a. Loss of firemain pressure
b. Loss of electrical power

9204.6 SAFETY PRECAUTIONS

.61 What general safety precautions apply to this system?

.62 What special safety precautions apply to handling refrigerant?

9205 SMALL BOAT/LANDING CRAFT MECHANIZED (LCM) BOAT SYSTEM

References:

a. Manufacturer's Technical Manual
b. Naval Ships' Technical Manual, Chap 233 (NAVSEA S9086-HB-STM

9205.1 What is the function of this system?

.11 Refer to a standard print of this system or to the actual equipm

9205.2 SYSTEM COMPONENTS AND COMPONENT PARTS

Discuss the designated items for the following components and component parts:

A. What is its function?
B. Where is it located?
C. What is the source of power?
D. What are the modes of operation or control?
E. What are the safety/protective devices for this component/ component part?
F. What are the probable indications if this component fails?
G. What is the source of control signals?
H. What are the positions and functions of each position?

		A	B	C	D	E
.21	Engine block	X	X			X
.22	Head assembly	X	X			
.23	Freshwater pump	X	X	X		
.24	Seawater pump	X	X	X		
.25	Accumulator pump (driven)	X	X	X		X
.26	Bilge pump	X	X	X	X	
.27	Alternator	X	X	X		X
.28	Hydraulic steering pumps	X	X	X	X	X
.29	Hydraulic ramp pump	X	X	X	X	X
.210	Engine controls	X	X			
.211	Transmission	X	X	X		
.212	Shafting and propellers	X	X			
.213	Ramp winch	X	X	X	X	X
.214	Electrohydraulic steering unit	X	X	X	X	X
.215	Fuel storage tank	X	X			
.216	Hydraulic fluid reservoir	X	X			
.217	Oily water separator pump	X	X	X		X
.218	Storage batteries	X	X			

9205.3 PRINCIPLES OF OPERATION

.31 How do the components work together to achieve the system's func

9205.3 PRINCIPLES OF OPERATION (CONT'D)

.32 Using a diagram of the system, show the path of:

a. Seawater from the sea chest to the overboard.
b. Fuel from the fuel tank to the engine.
c. Fuel from the engine to the tank.
d. Lube oil from the sump to the engine.
e. Lube oil from the engine to the sump.

.33 What indications will you receive if the system is malfuncti

9205.4 PARAMETERS

For the items listed answer the following questions:

A. What are the normal operating values?
B. Where are the parameters sensed?
C. What is the physical location of the indicators?
D. What is the alarm setpoint?

		A	B	C
.41	Engine oil pressure	X	X	X
.42	Transmission drive pressure	X	X	X
.43	Steering control pressure	X	X	X
.44	Ramp control pressure	X	X	X
.45	Hydraulic start pressure	X	X	X
.46	Engine water temperature	X	X	X

9205.5 SYSTEM INTERFACE - None to be discussed.

9205.6 SAFETY PRECAUTIONS

.61 What general safety precautions apply to this system?

.62 What special safety precautions apply to ramp operation?

9206 JP-5 SERVICE/TRANSFER SYSTEM

References:

a. Naval Ships' Technical Manual, Chap 9150 (New 542) (NAVSEA 0901-LP-150-0003)
b. JP-5 Filling and Transfer (NAVSEA 0915-000-7010)
c. JP-5 Filling and Transfer (NAVSEA 0947-078-3010)
d. JP-5 Filling and Transfer (NAVSEA 0915-001-8010)

9206.1 What is the function of this system?

.11 Draw a diagram of this system showing all components listed b

9206.2 SYSTEM COMPONENTS AND COMPONENT PARTS

Discuss the designated items for the following components and component parts:

A. What is its function?
B. Where is it located?
C. What is the source of power?
D. What are the modes of operation or control?
E. What are the safety/protective devices for this component component part?
F. What protection is provided by this component/component p
G. What is the source of control signals?

		A	B	C	D
.21	JP-5 fuel filter separators	X	X		X
.22	JP-5 transfer pumps	X	X	X	X
.23	JP-5 service pump	X	X	X	X
.24	Storage tanks	X	X		
.25	Helo service tank	X	X		
.26	Helo refueling station	X	X		
.27	Small boat refueling stations	X	X		
.28	Auxiliary boiler fueling line	X	X		
.29	Stripping piping and valves	X	X		
.210	Diesel fuel marine (DFM) JP-5 cross-connect manifold	X	X		
.211	Emergency shutdown switch	X	X	X	X
.212	Relief valves	X	X		

9206.3 PRINCIPLES OF OPERATION

.31 How do the components work together to achieve the system's f

.32 Using a diagram of the system, show the path of JP-5 from:

a. The fuel risers to the storage tanks.
b. The storage tanks to the service helo tank.

9206.4 PARAMETERS

For the items listed answer the following questions

A. What are the normal operating values and tolera
B. Where are the parameters sensed or monitored?
C. What is the physical location of the indicators
D. What is the alarm setpoint?
E. What is the relief valve setting?

.41 Service tank level
.42 Pump discharge pressure
.43 Overflow alarm setting

9206.5 SYSTEM INTERFACE - None to be discussed.

9206.6 SAFETY PRECAUTIONS

.61 What general safety precautions apply to this syst

.62 What special safety precautions apply to helo refu

9207 SHIP'S SERVICE DIESEL GENERATOR (SSDG) SYSTEM

References:

a. Manufacturer's Technical Manual
b. Engineman 3 & 2 (NAVEDTRA 10541)
c. Naval Ships' Technical Manual, Chap 233 (NAVSEA S9086-HB-ST

9207.1 What is the function of this system?

.11 Refer to a standard print of this system or to the actual equip

9207.2 SYSTEM COMPONENTS AND COMPONENT PARTS

Discuss the designated items for the following components and component parts:

A. What is its function?
B. Where is it located?
C. What is the source of power?
D. What are the modes of operation or control?
E. What are the safety/protective devices for this component/component part?
F. What protection is provided by this component/component par
G. What are the probable indications if this component fails?

		A	B	C	D	E
.21	Lube oil pump	X	X	X		
.22	Lube oil filter	X	X			X
.23	Lube oil cooler	X	X			
.24	Freshwater pump	X	X	X		
.25	Piston cooling pump	X	X	X	X	
.26	Fuel pump	X	X	X		
.27	Engine block assembly	X	X			
.28	Engine head assembly	X	X			
.29	Governor and overspeed trip assembly	X	X	X	X	
.210	Blowers	X	X			
.211	Starting unit	X	X	X	X	
.212	Exhaust manifold and muffler	X	X			
.213	Scavenging oil pump	X	X	X		

9207.3 PRINCIPLES OF OPERATION

.31 How do the components work together to achieve the system's fun

.32 Using a diagram of the system, show the path of:

a. Raw water from the firemain/circulating pump to the overboa
b. Freshwater from the pump discharge to the pump suction.
c. Lube oil from the storage tank to the sump

9207.4 PARAMETERS

For the items listed answer the following questions:

A. What are the normal operating values?
B. Where are the parameters sensed?
C. What is the physical location of the indicators?
D. What is the alarm setpoint?

		A	B
.41	SSDG revolutions per minute (RPM)	X	X
.42	Frequency	X	X
.43	Lube oil pressure to engine	X	X
.44	Lube oil filter pressure	X	X
.45	Lube oil temperature	X	X
.46	Freshwater temperature	X	X
.47	Freshwater pressure	X	X
.48	Raw water temperature	X	X
.49	Raw water pressure	X	X
.410	Expansion tank level	X	X
.411	Fuel pressure	X	X
.412	Scavenging air pressure	X	X
.413	Exhaust temperature	X	X
.414	Day tank fuel level/capacity	X	X

9207.5 SYSTEM INTERFACE

.51 How do the following outside influences affect this syste

a. Loss of electrical power
b. Operation of switchboard electrical overload

9207.6 SAFETY PRECAUTIONS

.61 What general safety precautions (as described in OPNAVINS apply to this system?

9208 CARGO HANDLING EQUIPMENT SYSTEM

References:

a. Manufacturer's Technical Manual

9208.1 What is the function of this system?

.11 Refer to a standard print of this system or to the actual equipme

9208.2 SYSTEM COMPONENTS AND COMPONENT PARTS

Discuss the designated items for the following components and component parts:

A. What is its function?
B. Where is it located?
C. What is the source of power?
D. What are the safety/protective devices for this component/component part?

		A	B	C	D
.21	Hatch covers	X	X	X	X
.22	Winches	X	X	X	
.23	Elevators	X	X	X	X
.24	Mooring capstan	X	X	X	
.25	Boom clamp	X	X	X	
.26	Fork truck	X	X	X	X
.27	Hand pallet truck	X	X	X	X

9208.3 PRINCIPLES OF OPERATION - None to be discussed.

9208.4 PARAMETERS - None to be discussed.

9208.5 SYSTEM INTERFACE - None to be discussed.

9208.6 SAFETY PRECAUTIONS

.61 What general safety precautions apply to this system?

9209 HOTEL SERVICES SYSTEM

References:

a. Manufacturers' Technical Manuals

9209.1 What is the function of this system?

.11 Refer to a standard print of this system or to the actual eq

9209.2 SYSTEM COMPONENTS AND COMPONENT PARTS

Discuss the designated items for the following components an component parts:

A. What is its function?
B. Where is it located?
C. What is the source of power?

.21 Steam heater
.22 Steam whistle
.23 Galley equipment
.24 Laundry/washer extractor
.25 Drycleaning equipment
.26 Laundry marking machine
.27 Laundry tumbler dryer
.28 Laundry press
.29 Sleeve press

9209.3 PRINCIPLES OF OPERATION - None to be discussed.

9209.4 PARAMETERS - None to be discussed.

9209.5 SYSTEM INTERFACE - None to be discussed.

9209.6 SAFETY PRECAUTIONS

.61 What general safety precautions apply to this system?

FINAL QUALIFICATION AS
LKA-113 CLASS ANCHOR WINDLASS OPERATOR

NAME______________________________RATE/RANK__________

This page is to be used as a record of satisfactory completion of desi sections of the Personnel Qualification Standard (PQS). Only specified su may signify completion of applicable sections either by written or oral ex or by observation of performance. The examination or checkout need not co item; however, a sufficient number should be covered to demonstrate the ex knowledge. Should supervisors "give away" their signatures, unnecessary d can be expected in future routine operations.

This qualification section is to be maintained by the trainee and upda ensure awareness of remaining tasks.

- -

QUALIFICATION

Having observed satisfactory performance, it is recommended the traine be designated a qualified LKA-113 CLASS ANCHOR WINDLASS OPERATOR (9301).

RECOMMENDED______________________________DATE__________
(Supervisor)

RECOMMENDED______________________________DATE__________
(Division Officer)

RECOMMENDED______________________________DATE__________
(Department Head)

QUALIFIED______________________________DATE__________
(Commanding Officer)

SERVICE RECORD ENTRY______________________________DATE__________
(Personnel Officer)

LKA-113 CLASS ANCHOR WINDLASS OPERATOR

QUALIFICATION SUMMARY

PQS INDOCTRINATION

COMPLETED______________________________
(Training Officer/Date)

FINAL QUALIFICATION AS
LKA-113 CLASS ELECTROHYDRAULIC STEERING SYSTEM OPERATOR

NAME____RATE/RANK________

This page is to be used as a record of satisfactory completion of des
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item; however, a sufficient number should be covered to demonstrate the e
knowledge. Should supervisors "give away" their signatures, unnecessary
can be expected in future routine operations.

This qualification section is to be maintained by the trainee and upd
ensure awareness of remaining tasks.

- -

QUALIFICATION

Having observed satisfactory performance, it is recommended the train
be designated a qualified LKA-113 CLASS ELECTROHYDRAULIC STEERING SYSTEM
OPERATOR (9302).

RECOMMENDED____DATE________
(Supervisor)

RECOMMENDED____DATE________
(Division Officer)

RECOMMENDED____DATE________
(Department Head)

QUALIFIED____DATE________
(Commanding Officer)

SERVICE RECORD ENTRY________________________________DATE________
(Personnel Officer)

LKA-113 CLASS ELECTROHYDRAULIC STEERING SYSTEM OPERATO

QUALIFICATION SUMMARY

PQS INDOCTRINATION

COMPLETED________________________________
(Training Officer/Date)

FINAL QUALIFICATION AS
LKA-113 CLASS AIR-CONDITIONING/REFRIGERATION PLANT OPERATOR

NAME____RATE/RANK________

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sections of the Personnel Qualification Standard (PQS). Only specified su
may signify completion of applicable sections either by written or oral ex
or by observation of performance. The examination or checkout need not co
item; however, a sufficient number should be covered to demonstrate the ex
knowledge. Should supervisors "give away" their signatures, unnecessary d
can be expected in future routine operations.

This qualification section is to be maintained by the trainee and upda
ensure awareness of remaining tasks.

QUALIFICATION

Having observed satisfactory performance, it is recommended the traine
be designated a qualified LKA-113 CLASS AIR-CONDITIONING/REFRIGERATION PLA
OPERATOR (9303).

RECOMMENDED____________________________________DATE__________
(Supervisor)

RECOMMENDED____________________________________DATE__________
(Division Officer)

RECOMMENDED____________________________________DATE__________
(Department Head)

QUALIFIED______________________________________DATE__________
(Commanding Officer)

SERVICE RECORD ENTRY___________________________DATE__________
(Personnel Officer)

LKA-113 CLASS AIR-CONDITIONING/REFRIGERATION PLANT OPERAT

QUALIFICATION SUMMARY

PQS INDOCTRINATION

COMPLETED________________________________
(Training Officer/Date)

FINAL QUALIFICATION AS
LKA-113 CLASS SMALL BOAT/LANDING CRAFT MECHANIZED (LCM) BOAT ENGINEER

NAME____ RATE/RANK________

This page is to be used as a record of satisfactory completion of design sections of the Personnel Qualification Standard (PQS). Only specified supe may signify completion of applicable sections either by written or oral exam or by observation of performance. The examination or checkout need not cove item; however, a sufficient number should be covered to demonstrate the exam knowledge. Should supervisors "give away" their signatures, unnecessary dif can be expected in future routine operations.

This qualification section is to be maintained by the trainee and update ensure awareness of remaining tasks.

QUALIFICATION

Having observed satisfactory performance, it is recommended the trainee be designated a qualified LKA-113 CLASS SMALL BOAT/LANDING CRAFT MECHANIZED (LCM) BOAT ENGINEER (9304).

RECOMMENDED____________________________________ DATE________
(Supervisor)

RECOMMENDED____________________________________ DATE________
(Division Officer)

RECOMMENDED____________________________________ DATE________
(Department Head)

QUALIFIED____________________________________ DATE________
(Commanding Officer)

SERVICE RECORD ENTRY______________________________ DATE________
(Personnel Officer)

LKA-113 CLASS SMALL BOAT/LANDING CRAFT MECHANIZED (LCM) BOAT E

QUALIFICATION SUMMARY

PQS INDOCTRINATION

COMPLETED______________________________
(Training Officer/Date)

FINAL QUALIFICATION AS
LKA-113 CLASS JP-5 SERVICE/TRANSFER SYSTEM OPERATOR

NAME____________________________________RATE/RANK________

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This qualification section is to be maintained by the trainee and update to ensure awareness of remaining tasks.

QUALIFICATION

Having observed satisfactory performance, it is recommended the trainee be designated a qualified LKA-113 CLASS JP-5 SERVICE/TRANSFER SYSTEM OPERATC (9305).

RECOMMENDED______________________________DATE________
(Supervisor)

RECOMMENDED______________________________DATE________
(Division Officer)

RECOMMENDED______________________________DATE________
(Department Head)

QUALIFIED______________________________DATE________
(Commanding Officer)

SERVICE RECORD ENTRY________________________DATE________
(Personnel Officer)

LKA-113 CLASS JP-5 SERVICE/TRANSFER SYSTEM OPERATOR

QUALIFICATION SUMMARY

PQS INDOCTRINATION

COMPLETED ________________________________
(Training Officer/Date)

FINAL QUALIFICATION AS
LKA-113 CLASS SHIP'S SERVICE DIESEL GENERATOR (SSDG) OPERATOR

NAME______________________________ RATE/RANK__________

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This qualification section is to be maintained by the trainee and update ensure awareness of remaining tasks.

QUALIFICATION

Having observed satisfactory performance, it is recommended the trainee be designated a qualified LKA-113 CLASS SHIP'S SERVICE DIESEL GENERATOR (SSD OPERATOR (9306).

RECOMMENDED______________________________ DATE__________
(Supervisor)

RECOMMENDED______________________________ DATE__________
(Division Officer)

RECOMMENDED______________________________ DATE__________
(Department Head)

QUALIFIED______________________________ DATE__________
(Commanding Officer)

SERVICE RECORD ENTRY______________________________ DATE__________
(Personnel Officer)

LKA-113 CLASS SHIP'S SERVICE DIESEL GENERATOR (SSDG) OP

QUALIFICATION SUMMARY

PQS INDOCTRINATION

COMPLETED ______________________________
(Training Officer/Date)

LKA-113 CLASS JP-5 SERVICE/TRANSFER SYSTEM OPERATOR (NAVEDTRA 43

COMPLETED ______________________________ (Department Head/Date)

FINAL QUALIFICATION AS
LKA-113 CLASS DUTY AUXILIARYMAN/SUPERVISOR

NAME______________________________RATE/RANK__________

This page is to be used as a record of satisfactory completion of design sections of the Personnel Qualification Standard (PQS). Only specified supe may signify completion of applicable sections either by written or oral exam or by observation of performance. The examination or checkout need not cove item; however, a sufficient number should be covered to demonstrate the exam knowledge. Should supervisors "give away" their signatures, unnecessary dif can be expected in future routine operations.

This qualification section is to be maintained by the trainee and update ensure awareness of remaining tasks.

QUALIFICATION

Having observed satisfactory performance, it is recommended the trainee be designated a qualified LKA-113 CLASS DUTY AUXILIARYMAN/SUPERVISOR (9307).

RECOMMENDED______________________________DATE__________
(Supervisor)

RECOMMENDED______________________________DATE__________
(Division Officer)

RECOMMENDED______________________________DATE__________
(Department Head)

QUALIFIED______________________________DATE__________
(Commanding Officer)

SERVICE RECORD ENTRY______________________________DATE__________
(Personnel Officer)

LKA-113 CLASS DUTY AUXILIARYMAN/SUPERVISOR

QUALIFICATION SUMMARY

PQS INDOCTRINATION

COMPLETED______________________________
(Training Officer/Date)

LKA-113 CLASS ANCHOR WINDLASS OPERATOR (NAVEDTRA 43140-9AQ1)

COMPLETED______________________________
(Department Head/Date)

LKA-113 CLASS ELECTROHYDRAULIC STEERING SYSTEM OPERATOR (NAVEDTRA 43140

COMPLETED______________________________
(Department Head/Date)

LKA-113 CLASS AIR-CONDITIONING/REFRIGERATION PLANT OPERATOR (NAVEDTRA 4

COMPLETED______________________________
(Department Head/Date)

LKA-113 CLASS SMALL BOAT/LANDING CRAFT MECHANIZED (LCM) BOAT ENGINEER (NAVEDTRA 43140-9AQ4)

COMPLETED______________________________
(Department Head/Date)

LKA-113 CLASS SHIP'S SERVICE DIESEL GENERATOR (SSDG) OPERATOR (NAVEDTRA 43140-9AQ6)

COMPLETED______________________________
(Department Head/Date)

9301 WATCHSTATION - LKA-113 CLASS ANCHOR WINDLASS OPERATOR 930

Estimated completion time: 10 weeks

Before starting your assigned tasks, complete the following items:

Fundamentals: 9101, 9102, 9105, 9106 (70% of watchstation)

Systems: 9201 (20% of watchstation)

9301.1 TASKS

For the tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What communications must be established?
E. What safety precautions must be observed?
F. What parameters must be monitored?
G. Perform this task IAW EOSS/EDORM.

.11 Start, operate and secure anchor windlass

(Signature) (Date)

.12 Start, operate and secure gypsy head

(Signature) (Date)

Completion of .1 area comprises 2% of watchstation.

9301.2 INFREQUENT TASKS - None to be discussed.

9301.3 ABNORMAL CONDITIONS - None to be discussed.

9301.4 EMERGENCIES

For the emergency conditions listed below:

A. What indications and alarms are received?
B. What immediate action is required?
C. What are the probable causes?
D. What operating limitations are imposed?
E. What other emergencies or malfunctions may occur if immediate action is not taken?
F. How does this emergency affect other operations?
G. Perform or simulate the immediate action for this emergency

9301.4 EMERGENCIES (CONT'D)

.42 Loss of electric/manual brake

(Signature) (Date)

.43 Loss of electrical power

(Signature) (Date)

Completion of .4 area comprises 2% of watchstation.

9301.5 WATCHES

Stand 3 satisfactory watches under qualified supervision.

SIGNATURE

Completion of .5 area comprises 6% of watchstation.

9302 WATCHSTATION - LKA-113 CLASS ELECTROHYDRAULIC STEERING SYSTEM OPERATOR

Estimated completion time: 14 weeks

Before starting your assigned tasks, complete the following it

Fundamentals: 9101, 9102, 9105, 9106 (50% of watchstation

Systems: 9202 (36% of watchstation)

9302.1 TASKS

For the tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What communications must be established?
E. What safety precautions must be observed?
F. What parameters must be monitored?
G. Perform this task IAW EOSS/EDORM.

		A	B	C	D
.11	Start, operate and secure steering units	X	X	X	X

(Signature) (Date)

		A	B	C	D
.12	Operate steering gear locally	X	X	X	X

(Signature) (Date)

		A	B	C	D
.13	Start, operate and secure transfer pump	X	X	X	

(Signature) (Date)

		A	B	C	D
.14	Monitor servo pressure	X	X	X	X

(Signature) (Date)

		A	B	C	D
.15	Shift from port unit to starboard unit	X	X	X	X

(Signature) (Date)

		A	B	C	D
.16	Operate port unit with starboard cable	X	X	X	

9302.1 TASKS (CONT'D)

Completion of .1 area comprises 3% of watchstation.

9302.2 INFREQUENT TASKS

For the infrequent tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What communications must be established?
E. What safety precautions must be observed?
F. What parameters must be monitored?
G. How are monitored parameters changed by this infrequent task
H. What conditions require this infrequent task?
I. Perform or simulate this task IAW EOSS/EOCC.

.21 Steer ship using hand pump

(Signature) (Date)

.22 Steer ship with emergency steering

(Signature) (Date)

Completion of .2 area comprises 3% of watchstation.

9302.3 ABNORMAL CONDITIONS - None to be discussed.

9302.4 EMERGENCIES

For the emergency conditions listed below:

A. What indications and alarms are received?
B. What immediate action is required?
C. What are the probable causes?
D. What operating limitations are imposed?
E. What other emergencies or malfunctions may occur if immediat action is not taken?
F. How does this emergency affect other operations/equipment/ watchstations?
G. Perform or simulate the immediate action for this emergency condition.

.41 Oil leaks

9302.4 EMERGENCIES (CONT'D)

.43 Low/loss of servo pressure

(Signature) (Date)

.44 Low/loss of hydraulic pressure

(Signature) (Date)

.45 Locking rudder amidships

(Signature) (Date)

.46 Loss of alarms

(Signature) (Date)

.47 Overheated motor

(Signature) (Date)

Completion of .4 area comprises 3% of watchstation.

9302.5 WATCHES

Stand 3 satisfactory watches under qualified supervision.

SIGNATURE DATE

Completion of .5 area comprises 5% of watchstation.

9303 WATCHSTATION - LKA-113 CLASS AIR-CONDITIONING/REFRIGERATION PLANT OPERATOR 9303

Estimated completion time: 14 weeks

Before starting your assigned tasks, complete the following items:

Fundamentals: 9101, 9103, 9105, 9106 (50% of watchstation)

Systems: 9203, 9204 (34% of watchstation)

9303.1 TASKS

For the tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What communications must be established?
D. What safety precautions must be observed?
E. What parameters must be monitored?
F. Perform this task IAW EOSS/EDORM.

		A	B	C	D	E	F
.11	Maintain air-conditioning and refrigeration logs	X	X		X	X	X
	(Signature) (Date)						
.12	Monitor pressures, temperatures and liquid levels	X	X		X	X	X
	(Signature) (Date)						
.13	Charge expansion tank with air/water	X	X		X	X	X
	(Signature) (Date)						
.14	Monitor operation of chilled-water pumps	X	X		X	X	X
	(Signature) (Date)						
.15	Start, operate and secure ship's refrigeration plant	X	X	X	X	X	X
	(Signature) (Date)						
.16	Start, operate and secure air-conditioning plant	X	X	X	X	X	X

For the infrequent tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What safety precautions must be observed?
D. What parameters must be monitored?
E. Perform or simulate this task IAW EOSS/EOCC/EDORM.

.21 Hot-gas defrost

(Signature) (Date)

.22 Shift refrigeration units

(Signature) (Date)

.23 Adjust water-regulating valve

(Signature) (Date)

.24 Pump down system to receiver

(Signature) (Date)

.25 Cross connect chilled-water system

(Signature) (Date)

Completion of .2 area comprises 3% of watchstation.

9303.3 ABNORMAL CONDITIONS - None to be discussed.

9303.4 EMERGENCIES

For the emergency conditions listed below:

A. What indications and alarms are received?
B. What immediate action is required?
C. What are the probable causes?
D. What operating limitations are imposed?
E. What other emergencies or malfunctions may occur if imm
action is not taken?
F. How does this emergency affect other operations/equipme
watchstations?
G. Perform or simulate the immediate action for this emerg

9303.4 EMERGENCIES (CONT'D)

.42 High suction temperature

(Signature) (Date)

.43 High/low expansion tank water level

(Signature) (Date)

.44 Excessive leakoff on circulating pump

(Signature) (Date)

.45 Low oil level

(Signature) (Date)

.46 Liquid floodback

(Signature) (Date)

.47 Loss of electrical power

(Signature) (Date)

.48 Loss of or low seawater pressure

(Signature) (Date)

.49 Low/loss of refrigerant

(Signature) (Date)

.410 Ruptured condenser tube

(Signature) (Date)

.411 Unusual noise or vibration

9303.5 WATCHES

Stand 3 satisfactory watches under qualified supervision.

SIGNATURE DA

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Completion of .5 area comprises 5% of watchstation.

04 WATCHSTATION - LKA-113 CLASS SMALL BOAT/LANDING CRAFT MECHANIZED (LCM) BOAT ENGINEER

Estimated completion time: 19 weeks

Before starting your assigned tasks, complete the following items:

Fundamentals: 9101, 9102, 9104, 9105, 9106 (49% of watchstation)

Systems: 9205 (44% of watchstation)

04.1 TASKS

For the tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What communications must be established?
E. What safety precautions must be observed?
F. What parameters must be monitored?
G. Perform this task IAW EOSS/EDORM.

	A	B	C	D	E	F	G
.11 Check water, oil and fuel levels	X	X			X	X	X
(Signature) (Date)							
.12 Start, operate and secure engine	X	X		X	X	X	X
(Signature) (Date)							
.13 Shift from ahead to reverse	X	X		X	X	X	X
(Signature) (Date)							
.14 Operate throttle	X	X	X	X	X		X
(Signature) (Date)							
.15 Engage ramp (LCM)	X	X	X	X	X		X
(Signature) (Date)							
.16 Engage steering (LCM)	X	X	X	X	X		X

.18 Shift and clean seawater strainers X X X X X

(Signature) (Date)

.19 Shift fuel oil strainers X X X X X

(Signature) (Date)

.110 Pump bilges X X

(Signature) (Date)

Completion of .1 area comprises 1% of watchstation.

9304.2 INFREQUENT TASKS

For the infrequent tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What communications must be established?
E. What safety precautions must be observed?
F. What parameters must be monitored?
G. How are monitored parameters changed by this infrequent task?
H. What conditions require this infrequent task?
I. Perform or simulate this task IAW EOSS/EOCC/EDORM.

		A	B	C	D	E	F	G	H	I
.21	Cold weather start	X	X			X	X		X	X
	(Signature) (Date)									
.22	Activate oily water bilge system	X	X			X			X	X
	(Signature) (Date)									
.23	Manually charge accumulators (LCM)	X	X	X		X	X	X	X	X
	(Signature) (Date)									
.24	Manually raise ramp (LCM)	X	X	X	X	X			X	X
	(Signature) (Date)									

9304.2 INFREQUENT TASKS (CONT'D)

.25 Manually operate rudders

A	B	C	D	E	F	G	H	I
X	X	X	X	X	X	X	X	X

(Signature) (Date)

Completion of .2 area comprises 1% of watchstation.

9304.3 ABNORMAL CONDITIONS - None to be discussed.

9304.4 EMERGENCIES

For the emergency conditions listed below:

A. What indications and alarms are received?
B. What immediate action is required?
C. What are the probable causes?
D. What operating limitations are imposed?
E. What other emergencies or malfunctions may occur if immediate action is not taken?
F. Perform or simulate the immediate action for this emergency condition.

.41 Loss of lube oil

(Signature) (Date)

.42 Vibration in drive train

(Signature) (Date)

.43 Engine knocking

(Signature) (Date)

.44 Loss of hydraulic pressure

(Signature) (Date)

.45 Loss of steering

(Signature) (Date)

.46 High freshwater temperature

9304.4 EMERGENCIES (CONT'D)

Completion of .4 area comprises 2% of watchstation.

9304.5 WATCHES

Stand 3 satisfactory watches under qualified supervision.

SIGNATURE ____

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Completion of .5 area comprises 3% of watchstation.

Estimated completion time: 16 weeks

Before starting your assigned tasks, complete the following items:

Schools: JP-5 Shipboard Handling

Fundamentals: 9101, 9105, 9106 (25% of watchstation)

Systems: 9206 (66% of watchstation)

9305.1 TASKS

For the tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What communications must be established?
E. What safety precautions must be observed?
F. What parameters must be monitored?
G. Perform this task IAW EOSS/EDORM.

		A	B	C	D	E	F	G
.11	Line up JP-5 service system to aviation fueling and flushing	X	X	X	X	X	X	X

(Signature) (Date)

		A	B	C	D	E	F	G
.12	Line up JP-5 service system to small boat refueling	X	X	X	X	X	X	X

(Signature) (Date)

		A	B	C	D	E	F	G
.13	Line up JP-5 service system to recirculate fuel from tank through filter/separator back to tank	X	X	X	X	X	X	X

(Signature) (Date)

		A	B	C	D	E	F	G
.14	Line up, start, operate and secure JP-5 service pump	X	X	X	X	X	X	X

(Signature) (Date)

		A	B	C	D	E	F	G
.15	Operate emergency shutoff device for service pump from aviation fueling station	X	X	X	X	X	X	X

(Signature) (Date)

service tank and filter/separator drain tank X X X X

(Signature) (Date)

.17 Drain water from filter/separator X X X X

(Signature) (Date)

.18 Monitor all pressures and temperatures on JP-5 service system X X X X

(Signature) (Date)

.19 Take fuel sample from discharge of filter/separator and helo refueling hose nozzle X X X X

(Signature) (Date)

.110 Establish communications between bridge, flight deck control, helo fueling station and JP-5 service pumproom X X X X

(Signature) (Date)

.111 Establish communications between JP-5 service pumproom and small boat refueling stations X X X X

(Signature) (Date)

.112 Perform MK 1 test on aviation fuel for sediment X X X X

(Signature) (Date)

.113 Perform MK 3 test on aviation fuel for sediment X X X X

(Signature) (Date)

.114 Line up and operate JP-5 service pumproom space eductor X X X X

(Signature) (Date)

9305.1 TASKS (CONT'D)

A	B	C	D	E	F	G
X	X	X	X	X	X	X

.115 Sound JP-5 tank

(Signature) (Date)

Completion of .1 area comprises 5% of watchstation.

9305.2 INFREQUENT TASKS - None to be discussed.

9305.3 ABNORMAL CONDITIONS - None to be discussed.

9305.4 EMERGENCIES

For the emergency conditions listed below:

A. What indications and alarms are received?
B. What immediate action is required?
C. What are the probable causes?
D. What operating limitations are imposed?
E. What other emergencies or malfunctions may occur if immediate action is not taken?
F. How does this emergency affect other operations/equipment/watchstations?
G. Perform or discuss the immediate action for this emergency condition.

.41 Ruptured fueling hose or leaking nozzle (aviation or small boat)

(Signature) (Date)

.42 Major JP-5 leak in service pumprooms

(Signature) (Date)

.43 Plugged or ruptured filter/separator

(Signature) (Date)

.44 Loss of space eductor

(Signature) (Date)

.45 Loss of electrical power

9305.4 EMERGENCIES (CONT'D)

.46 Loss of sound-powered telephone communications

(Signature) (Date)

Completion of .4 area comprises 1% of watchstation.

9305.5 WATCHES

Stand 3 satisfactory watches under qualified supervision.

SIGNATURE

Completion of .5 area comprises 3% of watchstation.

9306 WATCHSTATION - LKA-113 CLASS SHIP'S SERVICE DIESEL GENERATOR (SSDG) OPERATOR

Estimated completion time: 18 weeks

Before starting your assigned tasks, complete the following i

PQS Qualifications: NAVEDTRA 43140-9AQ5

Fundamentals: 9104 (10% of watchstation)

Systems: 9207 (80% of watchstation)

9306.1 TASKS

For the tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What communications must be established?
E. What safety precautions must be observed?
F. What parameters must be monitored?
G. Perform this task IAW EOSS/EDORM.

.11 Precheck SSDG

(Signature) (Date)

.12 Line up air start manifold

(Signature) (Date)

.13 Start, operate and secure SSDG manually

(Signature) (Date)

.14 Start, operate and secure SSDG automatically

(Signature) (Date)

Completion of .1 area comprises 5% of watchstation.

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What communications must be established?
E. What safety precautions must be observed?
F. What parameters must be monitored?
G. What conditions require this infrequent task?
H. Perform or discuss this task IAW EOSS/EOCC.

.21 Line up and operate emergency cooling bypass air manifold system

(Signature) (Date)

Completion of .2 area comprises 1% of watchstation.

9306.3 ABNORMAL CONDITIONS - None to be discussed.

9306.4 EMERGENCIES

For the emergency conditions listed below:

A. What indications and alarms are received?
B. What immediate action is required?
C. What are the probable causes?
D. What operating limitations are imposed?
E. What other emergencies or malfunctions may occur if immediate action is not taken?
F. How does this emergency affect other operations/equipment/watchstations?
G. Perform or simulate the immediate action for this emergency condition.

.41 Loss of air manifold solenoid/low air flask pressure

(Signature) (Date)

.42 Loss of or low lube oil pressure

(Signature) (Date)

.43 Loss of or low fuel oil pressure

(Signature) (Date)

.44 Loss of or low freshwater pressure

06.4 EMERGENCIES (CONT'D)

.45 Loss of or low seawater pressure

(Signature) (Date)

.46 High freshwater temperature

(Signature) (Date)

.47 High lube oil pressure

(Signature) (Date)

.48 High fuel oil pressure

(Signature) (Date)

.49 High lube oil temperature

(Signature) (Date)

Completion of .4 area comprises 1% of watchstation.

06.5 WATCHES

Stand 3 satisfactory watches under qualified supervision.

SIGNATURE DATE

Completion of .5 area comprises 3% of watchstation.

9307 WATCHSTATION - LKA-113 CLASS DUTY AUXILIARYMAN/SUPERVISOR 9307

Estimated completion time: 19 weeks

Before starting your assigned tasks, complete the following items:

Schools: 3-M (Supervisor only)

PQS Qualifications: NAVEDTRA 43140-9AQ1, NAVEDTRA 43140-9AQ2,
NAVEDTRA 43140-9AQ3, NAVEDTRA 43140-9AQ4,
NAVEDTRA 43140-9AQ6

Systems: 9208, 9209 (80% of watchstation)

9307.1 TASKS

For the tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What communications must be established?
E. What safety precautions must be observed?
F. What parameters must be monitored?
G. Perform this task IAW EOSS/EDORM.

		A	B	C	D	E	F	G
.11	Pre-underway/cold check and startup of auxiliary division equipment	X	X	X	X	X	X	X
	(Signature) (Date)							
.12	Secure/start auxiliary systems as appropriate upon entering port	X	X	X	X	X	X	X
	(Signature) (Date)							
.13	Record and relay trouble calls to appropriate work centers	X	X	X	X			X
	(Signature) (Date)							
.14	Make preparations for receiving JP-5	X	X	X	X	X	X	X
	(Signature) (Date)							
.15	Make A Division at sea/in port watch bill	X	X	X	X	X		X

components supplied by constant and intermittent steam system X X X X X

(Signature) (Date)

.17 Line up, operate and secure steam whistle X X X X X

(Signature) (Date)

.18 Operate auxiliary steam system X X X X X

(Signature) (Date)

.19 Start, operate and secure fire pumps X X X X X

(Signature) (Date)

Completion of .1 area comprises 6% of watchstation.

9307.2 INFREQUENT TASKS

For the infrequent tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What communications must be established?
E. What safety precautions must be observed?
F. What parameters must be monitored?
G. What conditions require this infrequent task?
H. Perform or simulate this task.

.21 Start, operate and secure cargo handling equipment

(Signature) (Date)

.22 Start, operate and secure galley equipment

(Signature) (Date)

.23 Start, operate and secure laundry equipment

(Signature) (Date)

.24 Start, operate and

9307.2 INFREQUENT TASKS (CONT'D)

.25 Start, operate and secure auxiliary refrigeration units

(Signature) (Date)

.26 Start, operate and secure hotel services

(Signature) (Date)

Completion of .2 area comprises 4% of watchstation.

9307.3 ABNORMAL CONDITIONS - None to be discussed.

9307.4 EMERGENCIES

For the emergency conditions listed below:

A. What indications and alarms are received?
B. What immediate action is required?
C. What are the probable causes?
D. What operating limitations are imposed?
E. What other emergencies or malfunctions may occur if immediate action is not taken?
F. How does this emergency affect other operations/equipment/watchstations?
G. Perform or simulate the immediate action for this emergency condition.

.41 Loss of firemain pressure

(Signature) (Date)

.42 Loss of electrical power

(Signature) (Date)

.43 Loss of hotel services

(Signature) (Date)

Completion of .4 area comprises 6% of watchstation.

Stand 4 satisfactory watches under qualified supervision.

SIGNATURE D

Completion of .5 area comprises 4% of watchstation.

Personnel Qualification Standard
Information Report and Suggestion Sheet
PQS DEVGRU AUTOVON 957-5367

om ____________________ DATE ______

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marks/Recommendations (Use additional sheets if necessary)

ggestions for improving this Qual Standard

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